Description of *Calliostoma heugteni* n. sp. (Gastropoda: Trochidae: Calliostomatinae) from eastern Atlantic

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ABSTRACT. *Calliostoma heugteni* n.sp. is described and compared with similar *Calliostoma* species from eastern Atlantic deep waters.

RÉSUMÉ. *Calliostoma heugteni* n.sp. est décrite et comparée avec des espèces analogues de *Calliostoma* d'eaux profondes de l'Atlantique oriental.

INTRODUCTION

There is relatively little information about deep waters *Calliostoma* from eastern Atlantic. The only major works in this field are certainly the ones of Dautzenberg (1889, 1925, 1927) and Dautzenberg & Fischer (1896, 1897).
So, we were a little amazing when the second author got a deep water calliostomatid-shell from the eastern Atlantic, about 1000 km off Canary Islands : we were indeed unable to identify it. This shell remembered two other ones, brought to the first author by Bart Van Heugten, an enthusiastic collector from the Netherlands.
These three shells are obviously close to some *Calliostoma* species from Atlantic, but definitively different. After further studies, it appears that these shells doesn't belong to any known species and it is described here.

Abbreviations

Repositories
MMF : Museu Municipal do Funchal, Madeira.
MNHN : Muséum national d'Histoire naturelle, Paris, France.

Other abbreviations
D : diameter
H : height
HA : height of the aperture
P1, P2, P3, ... : primary cords (P1 is the most adapical)
S1, S2, S3, ... : secondary cords (S1 is the most adapical)
T1 : most adapical tertiary cord
dd : no live-taken specimens present in sample

SYSTEMATICS

Family: **TROCHIDAE** Rafinesque, 1815
Subfamily : **CALLIOSTOMATINAE** Thiele, 1924
Genus: ***Calliostoma*** Swainson, 1840
Type species: *Trochus conulus* Linnaeus, 1758 (by s.d. Herrmannsen, 1846) – Recent, Mediterranean Sea
Subgenus : ***Fautor*** Iredale, 1924
Type species : *Ziziphinus comptus* A.Adams, 1855 (by o.d.) – Recent, southern Australia.

Calliostoma heugteni n.sp.
Figs 1-6

Type material. Eastern Atlantic, 29°35'N, 24°22'W, 340 m, holotype MMF 35207, 7.4 x 6.2 mm (dd); 30°06.7'N, 28°27.0'W, paratype, 6.7 x 5.9 mm (dd), collection F. Swinnen; paratype, 7.1 x 6.0 mm (dd), collection B. Van Heugten.

Diagnosis. A typical small *Calliostoma* species, high shaped, conoidal in shape, with 7 granular spiral cords on the last whorl, a convex base bearing a dozen of granular spiral cords and a narrow umbilicus.

Description. *Shell* rather small for the genus (height up to 7.4 mm, width up to 6.2 mm), conoidal in shape; spire high, almost conical, 3.3x to 3.5x higher than aperture, with a narrow, deep, partly covered, umbilicus.
Protoconch more or less 300 µm, of 1.25 whorl, covered by reticulate network of fine ridges; apical fold more or less straight, terminal varix visible and slightly thickened.

Teleoconch of 6 whorls, bearing spiral cords. Suture visible, not canaliculated. First whorl of teleoconch convex, sculptured by three granular primary cords; P2 and P3 appearing almost immediately, similar in size; P1 weaker, appearing a little later (at the end of the whorl or at the beginning of the next whorl); beads of cords more or less rounded, isolated; prosocline axial riblets connecting granules of cords. On second whorl, P2 becoming weakly stronger than P1 and P3, with rounded well separated beads, larger than on other cords; P3 stronger than P1; space between P1 and P2 slightly smaller than between P2 and P3; axial riblets more oblique than on the first whorl, still connecting granules. Third whorl almost flat in shape; Pi becoming fairly similar in size; interspace between cords almost as broad as cords; S2 appearing at the end of the whorl or at the beginning of the next whorl, quickly as strong as Pi; axial riblets becoming weak, finally disappearing. S1 appearing on fourth whorl, granular. On fifth whorl, all five cords similar in size; distance between cords as broad as cords; P4 emerging from suture, weaker than the other cords, possibly partly covered by next whorl, slightly granular or smooth. P4 clearly visible on periphery of last whorl; T1 appearing between P1 and S1, always weaker than the other cords, granular; periphery slightly subangular to rounded. Aperture subcircular, with weak lirae within; outer lip rather thin at rim, rounded; inner lip with no angle at meeting point with outer lip. Columella more or less straight, slightly oblique, smooth; callus almost completely or partly closing umbilicus. Base weakly convex, with 10-12 smooth spiral cords; distance between cords smaller as cords.
Colour of protoconch and teleoconch white; aperture nacreous.
Operculum unknown.

Discussion. Within known malacofauna of eastern Atlantic, *Calliostoma heugteni* n.sp. seems close to *C. cleopatra* (P.Fischer, 1883) (Figs 8-9) from off Sahara, but this species is much larger with a more depressed spire, more convex whorls, smooth abapical spiral cords, basal spiral cords stronger with intervals between cords larger than cords.
The new species slightly remembers *C. granulatum* (Born, 1778) (Fig. 7), but this well known species is bigger with much more numerous spiral cords, an angular periphery and without an umbilicus.
C. heugteni is also superficially similar to *C. hirondellei* Dautzenberg & Fischer, 1896 (Figs 10-11) but this poorly known species is much bigger with flat whorls, smooth spiral cords, an angular periphery and more numerous basal spiral cords.
Also, the new species is different from *C. lithocolletum* Dautzenberg, 1925 (Fig. 12) because this species is bigger with flat whorls, smooth spiral cords and an angular periphery.
The subgenus *Fautor* Iredale, 1924 was provisionally chosen for the new species regarding its small size, its high spire, its subangular periphery and its granular cords.

Etymology. The new species is named after Bart Van Heugten, the Netherlands, shells collector, who firstly provided two shells of the new species.

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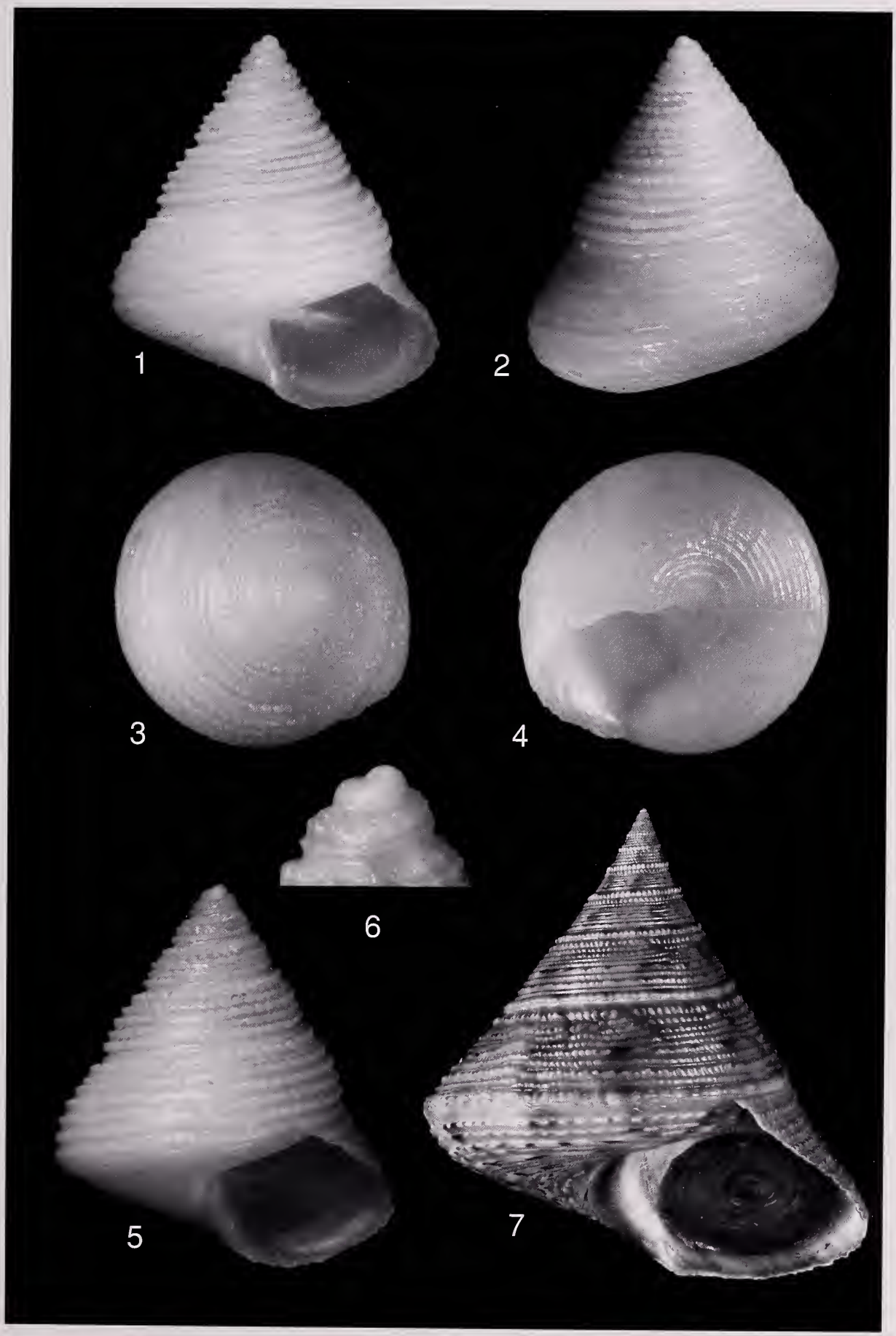
Figures 1-7

1-4. *Calliostoma heugteni* n.sp. holotype MMF 35207, eastern Atlantic, 7.4 x 6.2 mm.
5-6. *C. heugteni* n.sp., paratype, eastern Atlantic, 6.7 x 5.9 mm, coll. F. Swinnen.
7. *C. granulatum* (Born, 1778), Spain, 28 x 27 mm, coll. F. Swinnen.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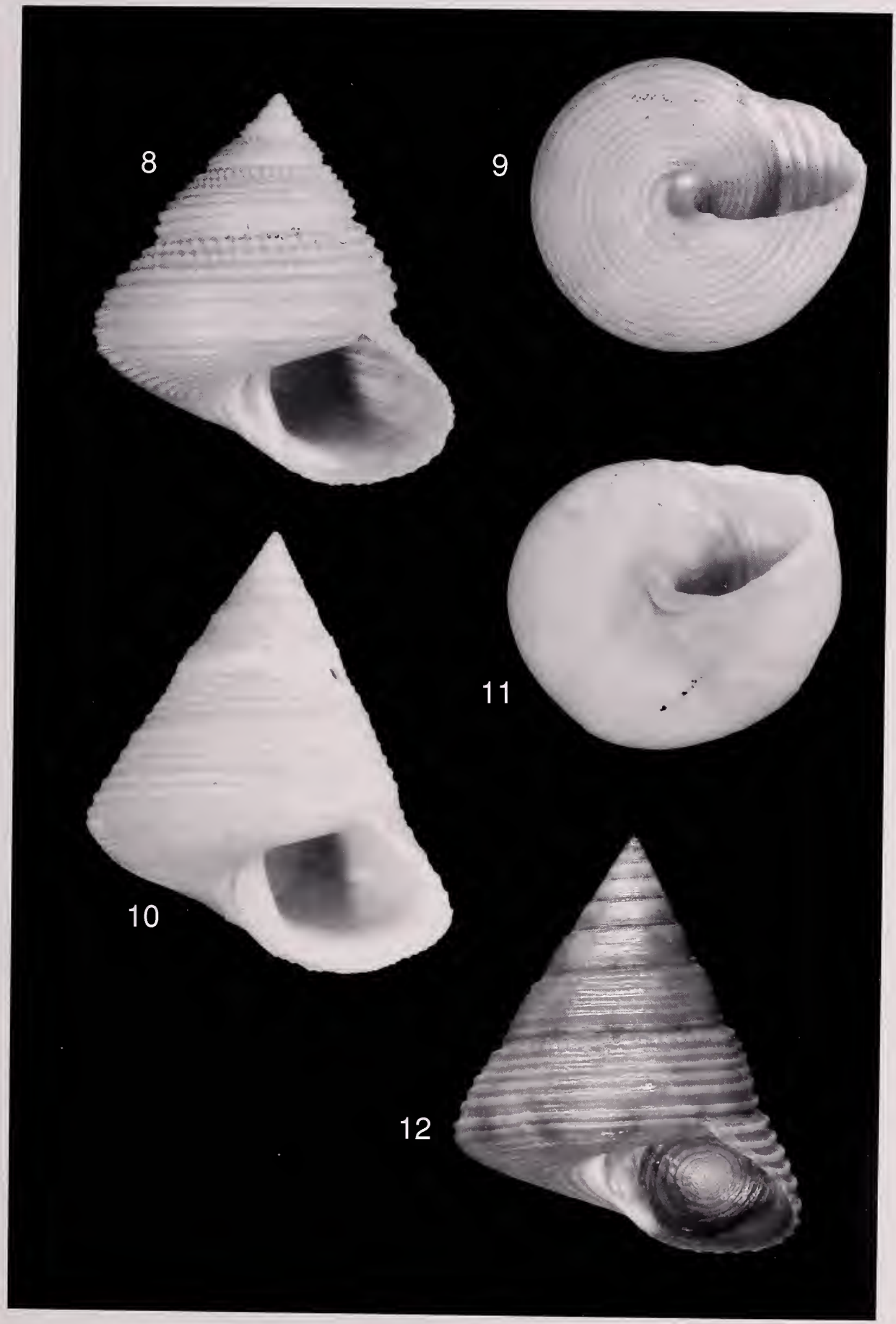
Figures 8-12
8-9. *C. cleopatra* (P.Fischer, 1883), figured syntype MNHN, off Sahara, 23.8 x 22.6 mm.
10-11. *C. hirondellei* Dautzenberg & Fischer, 1896, Canary Islands, 35.6 x 30.2 mm, coll. P. Sicilia Guillen.
12. *C. lithocolletum* Dautzenberg, 1925, Canary Islands, 30.7 x 25.8 mm, coll. F.Swinnen.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